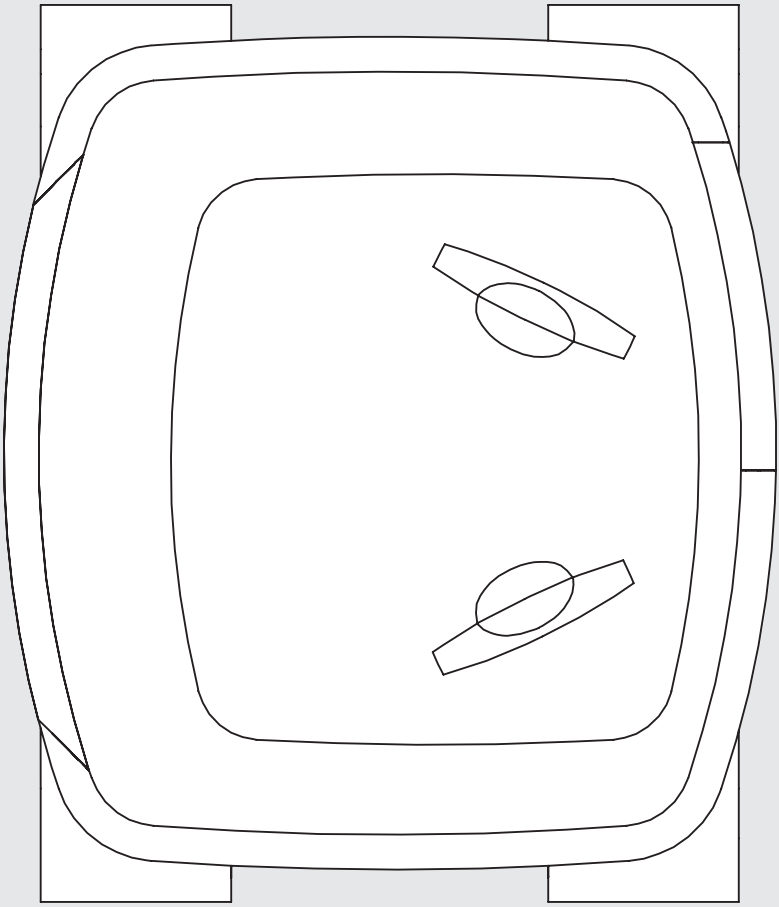
HEATRAE SADIA

SMARTER | CLEANER | WARMER

# HRU ECO 4

User manual



# Safety

**WARNING**

- Do not use this appliance for functions other than those described in the booklet.
- After removing the appliance from its packaging, ensure that it is complete and undamaged. If in doubt contact Heatrae Sadia. Do not leave the packaging within reach of children or the infirm.
- Certain fundamental rules must be observed when using any electrical appliance, including:
  a) Never touch appliances with wet or damp hands
  b) Never touch appliances while barefoot.
  c) Do not allow children to use the appliance without supervision.
  d) Supervise infirm persons when using the appliance.
- Store the appliance out of the reach of children and infirm persons if you decide to disconnect it from the power supply and no longer use it.
- Do not operate the appliance in the presence of:
  Inflammable substances or vapours (alcohols, insecticides, petrol, etc).

**CAUTION**

The following general instructions are important:

- Follow the safety instructions to prevent fan damage and personal injuries.
- Maintenance instructions must be followed to prevent damage and/or excessive wear and tear.
- The specifications in this manual may not be modified.
- The unit may not be modified.
- The motor module is only suitable for a 230 V 50 Hz a.c system fitted with a 3 amp fuse.
- Do not expose the appliance to the weather (rain, sun, etc).
- Do not place objects on top of the appliance.
- Regularly inspect the appliance for visible defects. If any faults are found, contact Heatrae Sadia immediately.
- The appliance must only be installed by a professionally qualified person.
- Ensure that the electrical system to which the appliance is connected complies with applicable standards.
- Use a multi-polar switch with a minimum contact gap of 3 mm to install the appliance. Switch off the appliance at the main switch.
  a) If the appliance does not function correctly.
  b) Before cleaning the outside of the appliance.
  c) If the appliance is not to be used for any length of time.
- Be careful to avoid damaging the electric circuit.
- Do not use the appliance to control activation of water heaters, room heaters etc, nor should it discharge into the flues of any such appliances.
- Ensure that the appliance discharges into a single duct (dedicated to this product) which is routed to the outside.
- The air to be extracted from the dwelling must be clean (i.e. free of grease, soot, chemical and corrosive agents, explosive or flammable mixtures).
- Keep the appliance intake and outlet grilles free to ensure optimum airflow at all times.

# Safety

### Electronic components

The HRU ECO 4 contains parts which may be live. Consult a professionally qualified installer in the event of an alleged fault. All repairs and maintenance work should be carried out by a professionally qualified installer.

### Maintenance

The ventilation unit should be inspected regularly for contamination. Electrically discharge the unit before carrying out any work on it. First isolate the unit from the mains supply and make sure that the unit is not re-connected or the supply plug is not reinserted in the socket by yourself or anyone else before you have completed the work.

### Rotating parts

The HRU ECO 4 contains rotating mechanical parts. These parts will keep on turning for a few seconds after disconnecting the unit from the supply. For this reason wait at least 10 seconds after isolating the product before opening the unit. The fan will not be moving after these 10 seconds have elapsed.

### Sharp edges of the ducts

The valves and grilles in your home should also be cleaned regularly. These can be removed from the wall or ceiling. Beware of protruding duct sections. These can be very sharp.

### Replacing the valves and grilles

The valves should always be placed back in their original locations. Do not turn the valve during the cleaning process; or make sure to mark the setting before cleaning the valve. If the valves are switched or set differently, the ventilation volumes will no longer be correct and the ventilation system will not work optimally. The bathroom may then remain humid for too long, your toilet may be very cool or your kitchen may smell mouldy.

### Maintenance of ducting

It is our recommendation that the ducting connected to the Extract Terminals (located in kitchens, utilities, bathrooms and en-suites) needs to be inspected every 3 years and cleaned every 6 years. Cleaning of the grille and ducting can be carried out with a damp cloth.

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Subject to changes without notice.
No rights can be derived from this user manual.

# 1 Why use balanced ventilation?

**Ventilation is necessary**

In the past people built houses which were not air-tight, which leaked air, for example, at the connection point of the wall and the floor or roof. Cracks were always visible around windows and doors. All these openings ensured that large volumes of air moved in and out of the buildings. When the wind was blowing the complete air content of the home was refreshed three to four times an hour. This ensured very good ventilation of the home, but a lot of energy was lost.

Construction methods have changed. Floors, walls and roofs are, when possible, constructed with a layer of insulation. The insulation ensures that there are nearly no cracks and the air- tightness is increased. It is a misconception to think that there is still enough ventilation in a home without some type of ventilation system. Ventilation is absolutely necessary in an air-tight home to prevent problems related to humidity, mould and the health of the residents.

**Moisture content of the home**

Incorrect use of the ventilation system by the resident in combination with today's well-insulated homes gives humidity an open field. The moisture content in the homes increases and can cause health, humidity and mould problems. A family of four persons produces 14 to 20 litres of moisture per day just by breathing, sleeping, cooking, washing, dishwashing, bathing, watering plants, etc. Many products, such as textile, carpets, parquet, newspapers and cigarettes, contain substances that harm the health of the residents. All the moisture such as water vapour and aromatic substances should be removed from the homes.

# 2 The correct use of your ventilation system

Ventilation requires energy. The correct use of the ventilation system can limit energy loss as much as possible.

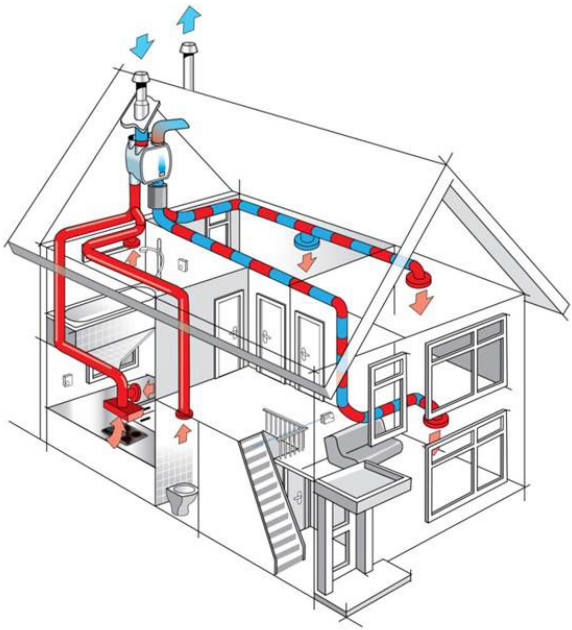
Your home has a Heatrae Sadia supplied HRU ECO 4 balanced ventilation system with heat recovery. This system can contribute extensively to a healthy interior climate and an optimum comfort level. Another advantage is that the electricity costs are lower than that of any other ventilation system. The balanced ventilation system can, however, only function correctly when used and maintained in a responsible manner.

Some health information:

- 5 to 20% of people have an airway disorder. The number of house dust mite has increased a hundredfold in the past 25 years.
- The number of people suffering from Chronic Non-Specific Lung Disease has doubled in the last 15 years.

Research has proven that fighting moisture in homes greatly contributes to the decrease of allergic reactions of people with an airway disorder. The correct use and maintenance of your balanced ventilation system makes this possible.

# 3 Operation of the balanced ventilation system



The central unit of the balanced ventilation system in your home is the HRU ECO 4 (heat recovery unit). This unit has two motors. One motor for air extraction and one for air supply. Air is extracted from the kitchen, bathrooms, en-suites, utility rooms and toilets and, if required, from a storage room. In larger properties more than one unit may have been installed.

### Air extraction and air supply

The contaminated air is filtered and fed through the heat exchanger before it is discharged outside. The fresh outside air is also filtered and fed through the heat exchanger before it is allowed into the home. Two air flows are led alongside each other in the heat exchanger (the air flows are, therefore, not intermingled). Thus, energy is saved as the heat of the discharged air is transferred to the fresh air intake. The air flows through the ventilation ducts to the bedrooms, living room and, if required, the hallway, i.e, every room with an intake grille.

### Optimum efficiency

The heat exchange is highly efficient. Independent tests at the Building Research Establishment show that up to 91% of the discharged warmth is reused within the home. The heat loss is, therefore, only about 9%.

> Not withstanding the heat exchange, which preheats fresh outside air, the balanced ventilation system should not be seen as a heating system. It is a ventilation system that contributes to the comfortable and healthy climate of your home.

### Overflow protection

The installation design assumes there is a 10 mm space between the bottom of all internal doors, outside door and the floor covering. If the floor covering is thicker, the doors should be shortened.

# 4 Bypass and frost protection

### 100% Bypass

The Heatrae Sadia heat recovery unit HRU ECO 4 is delivered as standard with a 100% bypass valve. This valve is completely integrated in the unit and ensures that, if required, the fresh outside air flows directly to the air supply system instead of through the heat exchanger. In this case there is no heat transfer between the warmer discharge air from the home and the colder intake air that is drawn into the home. The fresh outside air is blown directly into the home. This is definitely an advantage in the summer, when the outside air is often cooler than the air within the home.

### Frost protection

The unit includes, as standard, frost protection. This protection ensures that the unit does not freeze during the winter. The frost protection consists of a unique frost valve integrated at the top of the unit. The frost protection is fully automatic.

### Frost protection operation

In the heat recovery unit the fresh (colder) outside air is partly heated by the air discharged from the home. The exchange of heat takes place when both air flows are led through the heat exchanger. The discharged air may be cooled to a temperature very near freezing by the cold air entering the unit from outside. In this case, the unit will regularly open the frost valve and take in warm air from the home. This warm air is mixed with the cold air that is taken in from outside. The temperature of the intake air is, therefore, higher and the discharge air in the heat exchanger will also be safely above freezing. The unit will thus not freeze.

### Balancing the air flow

In a balanced ventilation system the volume of air coming from outside equals the amount of air discharged from the home. The outside air suction fan, therefore, turns faster when the frost protection is triggered. Thus, the volume of air coming from outside remains the same as the amount of air discharged from the home. The total volume of air intake increases proportionally with the volume of air taken in from the home by the frost valve. Opening the frost valve is not sufficient when the outside temperature is even lower. The intake fan will turn more slowly and, after some time, the discharge ventilator will turn faster. The air, therefore, remains above freezing. This results in a temporary imbalance of the ventilation (the volume of air coming from outside is no longer equal to the amount of air discharged from the home). When the outside temperature increases, the unit automatically resets the fans to the initial values. The ventilation is thus once again balanced.

### Electronic components

The electronic components are important parts of the unit. The electronic components control the operation of the unit when you set the mode switch. The motor is set to the speed that ensures the desired ventilation. The electronic components consist of a basic printed circuit board and an optional radio frequency module. This can be used to extend the ventilation unit with radio frequency operation. The user should not touch the electronic components. These components may be live.

# 5 Grilles

**Grilles**

The volume of air that has to be extracted is specified in the Building Regulations. The volume of air flowing into the home has to be in balance with the extracted volume. The volume of air extracted from and supplied to the home should, in other words, be equal. The minimum air volume per room is also determined by the Building Regulations. The set volume of air is determined based on achieving an optimum home climate without wasting energy. The air intake and discharge per room are not equal. The extraction and intake grilles all have their own fixed positions and settings.

Extract Valve

Supply Valve

The setting of the grilles should not be changed. Changing the settings may disrupt the operation of the complete ventilation system. Grilles and valves should not be switched with each other.

# 6 System control

The HRU ECO 4 ‘Combiflow’ system has been designed to recover as much heat as possible and to function well using as little energy as possible. The Heatrae Sadia HRU ECO 4 can be operated using a radio frequency operation switch.

### Radio frequency (RFT) operation switch

The RFT (radio frequency) operation switch (transmitter) can be used as a 3-position mode switch with timer feature for the HRU ECO 4 ventilation unit. This operation switch can be used to set the ventilation unit to one of the three ventilation modes (capacities): The modes are:

Mode 1 - Low mode.
Mode 2 - Medium mode.
Mode 3 - High mode.

The low mode is a continuous background setting, the medium mode can be used for improved comfort and the high mode when cooking, showering or bathing. The switch also has a timer. The ventilation unit can be switched to high mode for a predetermined time by pressing the timer button. The timer automatically switches the ventilation unit to low mode after the time has elapsed.

*RFT operation switch.*

The length of time set for the timer is determined by the user.
Press the timer button once to set the ventilation unit to high mode for 10 minutes.
Press the timer button twice to set the ventilation unit to high mode for 20 minutes.
Press the timer button three times to set the ventilation unit to high mode for 30 minutes.

If the operation switch is used by choosing mode or while the timer is in operation, the timer is switched off and the ventilation unit operates in the chosen mode.

### Hard wired 3 position switch

The HRU ECO 4 can be operated using the 3 position switch.

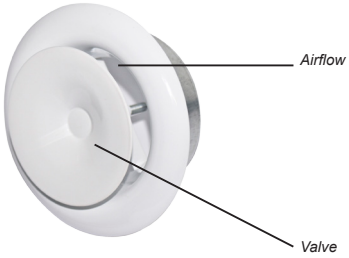
HRS-3. Step one is used at night, step two during the day when there are people at home and step three when cooking, showering or bathing.

**Recommended hours of operation**

A new home contains approximately 2000 litres of moisture in its floors and walls. This moisture has to be removed from the home. It is recommend that a new home be ventilated more intensively during the first few months. For example, by setting the ventilation system to medium mode instead of low mode during the day time. The recommended hours of operation are provided in the list below.

To guarantee a healthy environment in your home we recommend the following daily hours of operation for the ventilation system:
At most 14 hours in low mode.
At least 8 hours in medium mode.
At least 2 hours in high mode.

# 7 Maintenance




**Grilles**
The grilles have to be cleaned regularly to ensure the constant and reliable operation of the ventilation system and for your own health. Make sure that the setting of the system (air flow) is not changed when you clean the grilles. The valve could be turned by accident and this would mean that the opening becomes larger or smaller. Each grille should be placed back in the same duct opening in the same room from which it was removed.

**Filters**
The heat recovery unit and the extractor have filters. The filters prevent the contamination of the ventilation, guarantee years of correct operation and ensure that clean air is blown into your home. This is very important for your health. Check and clean the filters regularly and replace the filters when necessary. This ensures the home is ventilated sufficiently at all times. The filters can be cleaned manually by washing them.

**Cleaning grilles without filters**
Grilles without filters can be taken out of the duct opening (twist to the left). Before you clean the grille in warm water (with detergent), remove the foam plastic ring. After cleaning, the grille can be replaced in the duct opening with a twist to the right. Always make sure you replace a grille in the same room.
In addition make sure NOT to alter the setting of the grille.

*Removing the front of the unit.*

### Condensate discharge

The warm contaminated air passes along the colder fresh outside air in the heat exchanger of the heat recovery unit. This can often result in condensate being formed, therefore the HRU ECO 4 has an integral condensate discharge drain. This drain has a PVC coupling with a 40 mm external diameter. The installer connects this coupling of the heat recovery unit to the house sewerage grey water system or surface water drain pipe using a separate removable rubber coupling.

An air trap with a minimum level difference of 250 mm is added in this connection. Above the air trap, a branch pipe is mounted at a 45-degree angle. This branch pipe has a cover with a rubber ring. This can be opened to easily top up the water trap. This is required to maintain or restore the water trap.

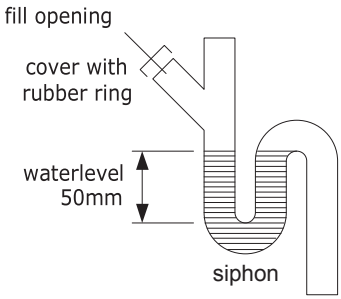
### Fixed coupling with fill opening

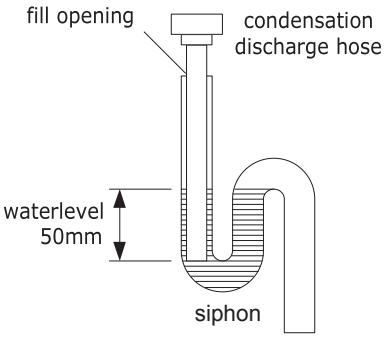
If the air trap runs dry, the air from the house sewerage will be able to enter through the unit and be discharged outside by the discharge ventilator. No smell will be caused but the discharge capacity will decrease. We recommend refilling the air trap quarterly. The water will evaporate more quickly in summer.

### Smells near the coupling with the condensation discharge hose

When the air trap runs dry, a direct connection with the house sewerage is created. This creates smells. Refill the air trap using the fill opening to solve the problem. Effective discharge of cooking and baking vapours in the kitchen is guaranteed by the extractor. The extractor is connected to the balanced ventilation system.

It is preferable to have a registered installer carry out the cleaning.



# 8 Warranty conditions

The Heatrae Sadia HRU ECO 4 warranty is valid for 2 years after installation date. The installation date is indicated on the type plate.

The warranty does not apply to:

- Disassembly and assembly costs.
- Faults which are, in our opinion, caused by incorrect treatment, negligence or an accident.
- Faults that have been caused by repairs or intended repairs by third parties without our authorisation.
- Faults caused by irregular and / or incompetent maintenance.
- Modification to the appliance.
- Incorrect installation of the appliance.
- Incorrect power supply, please refer to page 3 for correct power supply.

Should the unit become damaged or malfunction, switch it off, isolating it from the mains supply, and contact Heatrae Sadia immediately.

The warranty is only valid if the warranty card was filled in by your supplier on the date of installation and if it is sent along with any request for repair (a receipt including the date of installation is also acceptable). This warranty card should be filled in on the installation date and be kept by the user.

Type House / Apartment (delete as appropriate)

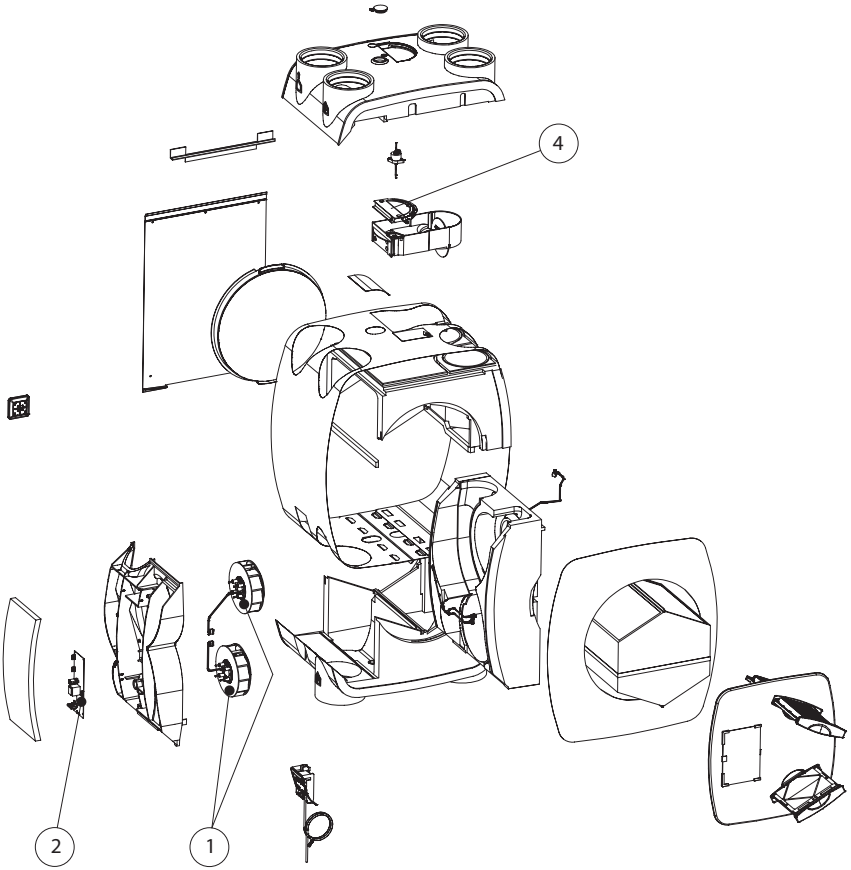
Serial number

Voltage

Installation date

Supplier seal

# Spares




| Heatrae Sadia HRU | | |
|---|---|---|
| Item No. | Part | Part No. |
| 1 | Fan (1 only) | 95607722 |
| 2 | PCB Set | 95615088 |
| 3 | Sensors (not shown) | 95607723 |
| 4 | Frost Valve | 95605905 |

# 9 Manufacturer's statement

**EC declaration of conformity**
According to Low Voltage Directive 2006/95/EC and the EMC Directive 2004/108/EC.

**Declaration of Incorporation**
According to Annex IIB of the Machinery Directive 2006/42/EC,

Heatrae Sadia Heating
Hurricane Way
Norwich NR6 6EA

**hereby declare under our sole responsibility that the following products:**

**Heat Recovery Ventilation System**
**Type: HRU ECO 4**

**is in conformity with the following EC Council Directives:**
- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC

and Applied Harmonised Standards:
- EN60730-1
- EN61000-3-2
- EN61000-6-1
- EN61000-6-3
- RoHs / Weee

and must be regarded as partly completed machinery and is intended to be incorporated in a machine or to be assembled with other machines into a single machine or system to which the Machinery Directive 2006/42/EC applies.

We want to alert you that the product is designed to be incorporated in a ventilation system and that the partly completed machine must not be put into service until the final machinery into which it is to be incorporated is in conformity with the provisions of Machinery Directive 2006/42/EC for which the most important instructions can be found in the manual.

We explicitly state that the CE marking on the product only refers to the Low Voltage Directive 2006/95/EC and the EMC Directive 2004/108/EC.

After the submission of a declaration according to Annex IIA of the Machinery Directive for the entire installation, the CE marking on the device also refers to the Machinery Directive 2006/42/EC.

# 10 EU Declaration of Conformity

**EC declaration of conformity**

According to Annex II of the Machinery Directive 2006/42/EC
We:

Name of installer: _____

_____

Full address and country: _____

_____

Hereby declare under our own responsibility, to have installed the following product with type designation:
**Heat Recovery Ventilation**

**Type: HRU ECO 4**

to which this declaration refers. We declare the entire installation (being a single machine) in conformity with the Machinery Directive.

Place: _____

Date: _____

Name: _____

Position: _____

Signature: _____

Company Stamp:

# 11 Troubleshooting

| Problem | | Troubleshooting |
|---|---|---|
| Fans do not turn. | No power supply. | Mains voltage failure.<br>Wall socket power supply failure.<br>Check the distribution board in the fuse cabinet/meter cupboard.<br>Check whether the 230 Volt plug is placed correctly in the unit. |
| Intake fan does not turn. | Little or no air is coming through the intake grilles. | Frost protection is activated.<br>Clean the filters. |
| Discharge fan does not turn. | No suction through the discharge grilles. | Clean the filters. |
| Low volume of intake air. | Low volume of air through intake grilles. | Clean the filters.<br>Exchanger is partially frozen shut (frost protection failure). |
| Low volume of discharge air. | Low volume of air to discharge grilles. | Clean the filters.<br>Exchanger is partially frozen shut (frost protection failure). |
| Condensation leakage. | Drops of water on bottom of the unit. | Condensation discharge is clogged.<br>Leaking condensation discharge. |
| Unpleasant smell. | Near the unit.<br>Near intake grilles. | Air trap under the unit is dry.<br>Distance between outside air suction and ventilation outlet is too small. |
| Noise. | Swishing sound from the air flow. | The duct system is creating too much resistance.<br>Valves are not opened sufficiently.<br>Valves do not fit the duct properly.<br>Too much resistance due to contamination of filters or exchanger frozen). |
| | Rattling noise. | Fan does not run true or is faulty. |
| | Gurgling noise. | The air trap is dry.<br>Condensation discharge is not sufficiently deep in the air trap. |

*If the problem persists, report the details to the installer.*

# Climate for life

*Heatrae Sadia at all times strive to offer people an enjoyable living and working environment with its innovative solutions in climate systems. These are solutions for temperature, clean air and hot water in the domestic environment in which people and environment go harmoniously together. We want a more comfortable and healthier living environment but at the same time, we aim for lower energy consumption. With sustainable technologies and innovations, Heatrae Sadia proves that seemingly opposite objectives can be combined with very little effort. Our aim is to develop climate systems that respect the world around us. Your wishes become our inspiration and Heatrae Sadia works constantly to achieve this:* ***Climate for life****.*

HEATRAE SADIA
SMARTER I CLEANER I WARMER

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